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Ask the right questions, and nature will open the door to her secrets

- Dr. C.V. Raman, The Nobel Prize in Physics 1930

IIT Madras researchers identified molecular mechanisms to convert seawater into drinking water

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Researchers at Indian Institute of Technology (IIT) Madras through a new nanopore geometry for desalination techniques have identified the possible molecular mechanisms in water flow to convert seawater into drinking water. As part of Water Technology Initiative (WTI), Department of Science and Technology, GoI sponsored the project. Researchers highlighted the following practical applications of the Research over the long-term.

- Solute solvent separation process
- Tunable membranes and/or selective transport (ion selectivity and drug delivery)
- Benchmarking bio-inspired nanopore geometries of various materials
- Water dynamics inside biological nanopores - for development of artificial organs

IIT Guwahati developed an advanced technique to estimate the SOC in battery-powered electric vehicles

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Researchers from the Dept. of Electronics and Electrical Engineering at IIT Guwahati developed an advanced technique that can precisely estimate the State of Charge (SOC) in battery-powered electric vehicles. Researchers reported that with the knowledge of remaining capacity, one can optimise battery's utilisation, reduce costs, prevent overcharging undercharging & increase lifespan.

Researchers at IIT Madras developed a new approach for accurate detection of earthquakes

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Researchers at Indian Institute of Technology (IIT) Madras, claimed to have developed a new approach for accurate detection of earthquakes as this method provides a lead time of approximately 30 seconds to 2 minutes (range may vary primarily depending on the distance of epicentre location from the monitoring site or plant) and this lead time would provide a sufficient time to shut down nuclear reactors, metro services, park elevators and for other measures. Researchers further claimed that the new method could incorporate any predictive models including the Machine Learning and Deep Learning models, which would reduce the human intervention in the detection. The findings of the research was published in the journal PLOS ONE.

Researcher at JNCASR developed new compound to treat Autism

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To offer a better treatment for Autism Spectrum Disorder, researchers at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous research institute of the Department of Science & Technology (DST), GoI have developed a new compound (6BIO) that promises & has demonstrated a potential to restore neuronal function, learning and memory, and reduce epileptic seizures in a mouse model. JNCASR researchers by using electrophysiology and behavioral experiments showed that new compound named 6BIO can restore the information processing in the mouse model and therefore has a strong potential as a therapeutic to treat the disorder.

Special Update: IISc researchers identified potential blood-based biomarkers for brain tumours

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Researchers from the Centre for BioSystems Science and Engineering (BSSE) at Indian Institute of Science (IISc) in collaboration with Mazumdar Shaw Centre for Translational Research and Mazumdar Shaw Medical Foundation by analysing tumour to identify surface proteins on immune cells in the blood samples from individuals with gliomas (grade three and grade four gliomas) has identified potential blood-based biomarkers. Researcher further informed that the potential blood-based biomarkers would help to predict brain tumor disease progression and survival times in those with late-stage. A report on the study has been published in OncoImmunology.